An Integrated Framework for Urban River Restoration Decision Making

What every Corps planner needs to know to provide effective leadership in a collaborative setting

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Policy Direction

- July 2002 & August 2005 MOUs between USEPA and Corps to mesh their multiple authorities that address water quality and other environmental issues, economic revitalization and public use of the nation's urban rivers

- Eight pilot studies addressing a diverse set of issues

The Urban River Challenge # I —Multiple Problems

- Continuing point and nonpoint discharges of pollutants
- Contaminated sediments
- Altered shorelines and limited public access
- Degraded wetlands and other riparian habitat
- Unattractive for economic development

The Urban River Challenge # II —Multiple Authorities

- Policy responses are tied to agency authorities and implementing investment and regulatory frameworks. E.g.:
  - Corps—water flow and sediment movement
  - EPA—Water quality and contamination
  - USDOI and NOAA—ecological concerns
  - State and local regulatory and other oversight programs

Fundamental Differences in Authorities

- Corps planning under the U.S. Water Resource Council's *Principles and Guidelines*-- multiple objectives and incremental formulation
- Water quality planning—single objective "standards" or targets to be met
- CERCLA planning targets— protection of human health and environment; permanent solutions
- NRDAR—restoration to pre-damage conditions

Differences in Authorities Result in Differences in Perspectives

- Single vs. multiple objectives
- Presumption that target will be met vs. presumption that any action must be justified
- Financial costs vs. economic opportunity costs
- Before and after vs. with and without analysis

Gap Analysis vs. With and Without Analysis

- Gap analysis begins with a target and develops plans to meet the target. The target is altered only when costs are prohibitive or technologically unachievable.
- P&G analysis begins with no action and incrementally develops alternatives.

Developing an Integrated Planning Framework (IPF)

- Goal is informed decision making.
- Must respond to the perspectives and authorities of the collaborating parties
- The Corps six-step planning process is a sound approach to integrated, collaborative planning.
- “Steps” become “Elements” in IPF to emphasize iterative planning process.

Element I: **Developing Objectives and Targets**

- P&G objectives are directional goals; e.g., increase wetland acreage.
- CERCLA, CWA, and NRDAR targets come from legal authorities and are desired end states, e.g. reduce risk to human health to 10^{-X}.
- Defined and refined by participants in the planning process

Element II: **Forecast Future Conditions**

- Forecast becomes the baseline for analysis
- Develop an agreed-upon future without action condition for each objective and each target
- Recognize that the importance of the without condition versus the present state receives different degrees of emphasis in different programs

Element III: **Formulate Alternative Plans**

- "Full" range of plans that can be expected to alter the future without action level of the planning objectives and targets is to be sought.
- Agency legal and procedural requirements may affect order of formulation and combinations of measures.
- Responding to each agency's "culture" is important

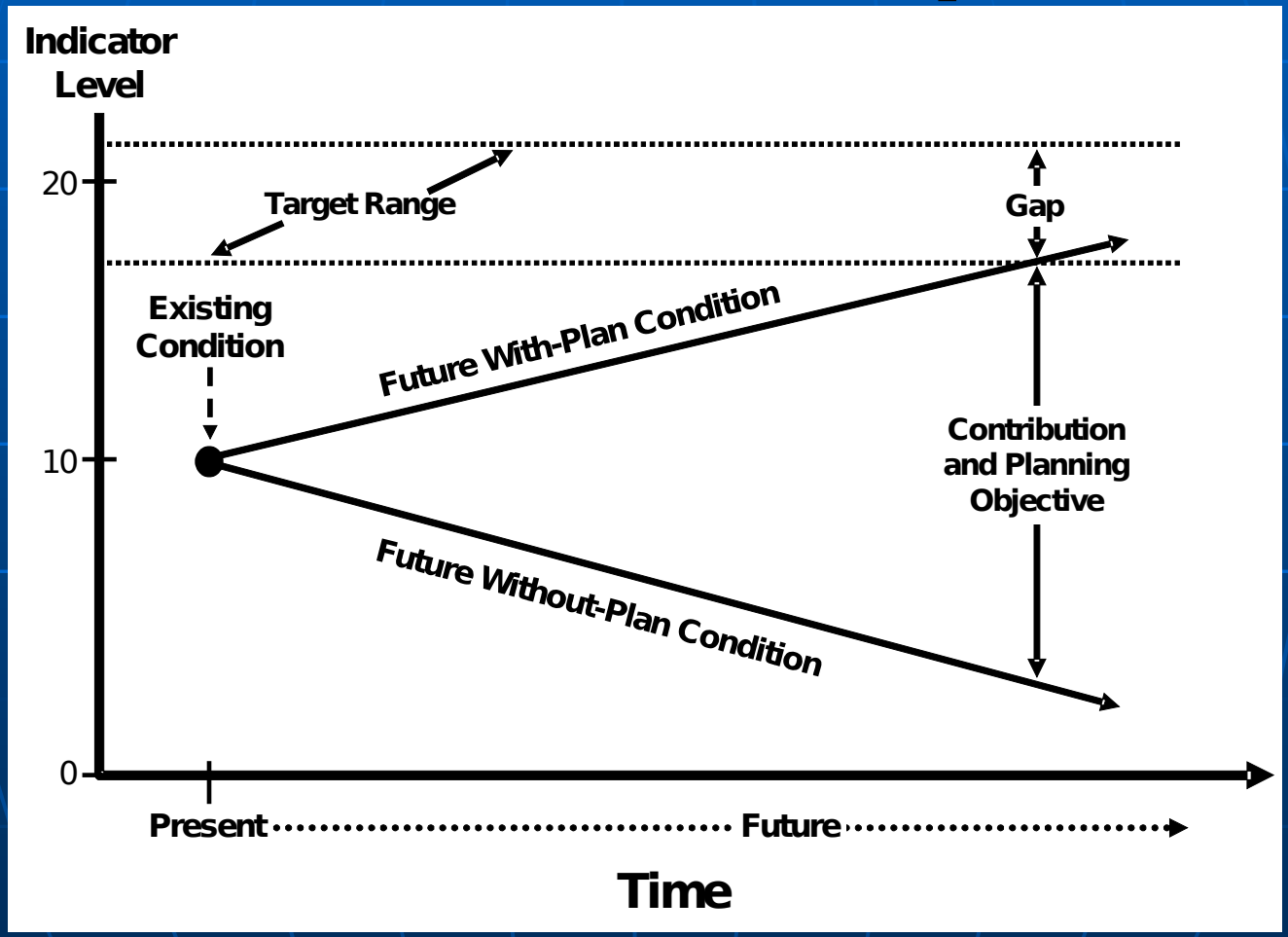
Element III: **Formulation (continued)**

- Important to focus on the interactions inherent in formulation and evaluation:
  - Limiting the number of alternatives
  - Refining objectives and targets based on cost, efficacy and legal requirements
  - Recognition of the interrelations between achievement of objectives and targets inherent in various measures

Element IV: **With Action Predictions**

- Challenging, costly, and controversial
- Ecological and health-risk response to stressor modification often highly complex and uncertain
- Recognize and utilize expertise of others
- Explicitly address gaps as well as “benefits”

Element IV: **With Action Predictions--Gaps vs.**



Element V: **Evaluation**

- Comparisons of plans based on incremental analysis requires responding to two perspectives:
  - Increases in outputs or “benefits” in light of objectives and targets for added levels of expenditure
  - Remaining gaps between targets and outputs

Element V: **Evaluation (continued)**

- Monetary and non monetary metrics may be used in evaluation.
- Composite measures simplify understanding of tradeoffs.
  - Monetization is the ultimate composite.
  - Agreement on evaluation metrics among collaborating parties may be difficult to achieve.
  - Regardless of metrics, tradeoffs must be made.

Element VI: **Alternatives Comparison**

- Presentation should be responsive to all the collaborating parties.
  - What combinations achieve greatest benefits for a given budget?
  - What are the additional benefits and gap reductions for additional costs?
- Use of different metrics and the need to address both objectives and targets make communication difficult.

The Metrics Problem

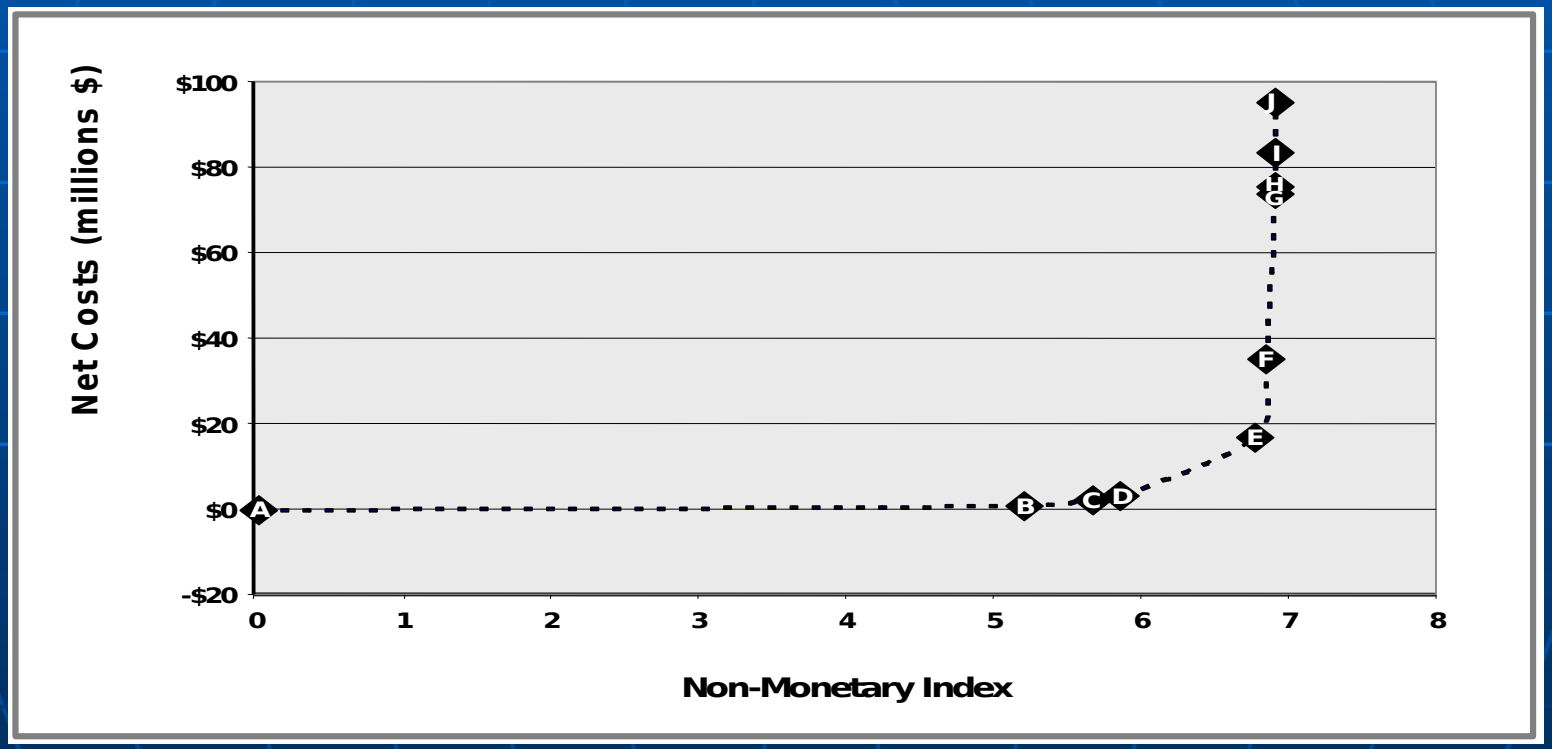
Comparison of Plans X and Y

Category	*Alternative X*	*Alternative Y*
Cost	$1 million	$1 million
$ Benefits	$500,000	$1 million
Non-$ Ben.	10 EBI units	5 EBI units

- Was discounting applied to all benefit metrics?
- What is the $ value of an EBI unit?
- How does the concept of diminishing marginal value apply?

The Target Issue

- Can targets be moved by analysis?



Special Note on Costs

- For many collaborators, costs are only financial outlays.
- The IPF expands notion of costs to include benefits forgone.
- The cost of a plan can include both financial outlays and the benefits produced by another plan that can not be realized otherwise.

The Challenges of Collaboration *(Key Take-away Points)*

- When
  - The issues are complex.
  - The perspectives and authorities are diverse.
- The IPF can bring the benefits of incremental analysis to a wide audience.

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